

10/5/16 "Rudeness is the weak person's imitation of strength" -Eric Hoffer

HW: "Factoring Trinomials by Grouping" w/s
Test 2 on Wednesday 10/19

AIM: Is there another way to factor trinomials where $a \neq 1$?


Warm Up:

1) Factor

$$\begin{array}{c}
 \overset{a}{6}x^2 + \overset{c}{1}x - 2 \\
 \swarrow \quad \searrow \\
 6x^2 \quad -3x \quad +4x \quad -2 \\
 3x(2x-1) \quad +2(2x-1) \\
 (2x-1)(3x+2)
 \end{array}$$

$a \cdot c = -12$
add to +1

-12		
6	-2	
-6	2	
-3	4	
3	-4	
-1	12	
1	-12	



Recall:

Standard form of a quadratic expression $ax^2 + bx + c$

Steps to use "Grouping" instead of "Trial and Error"

1. Find the product of "a" and "c"
2. List the factor pairs of "ac"
3. Identify the factor pair whose sum is "b"
4. Replace the bx with 2 terms using the factors from step 3
5. Factor the new expression using "Grouping"

3) Factor

$$12x^2 + 5x - 2$$

$$ac = -24$$

$$12x^2 + 8x - 3x - 2$$

$$4x(3x+2) - 1(3x+2)$$

$$(3x+2)(4x-1)$$

$$a = 12$$

$$b = 5$$

$$c = -2$$

$$12x^2 - 3x + 8x - 2$$

$$3x(4x-1) + 2(4x-1)$$

$$(4x-1)(3x+2)$$

-24	
-24	1
24	-1
-8	3
8	-3
-12	2
12	-2
-6	4
6	-4

Factor each of the following completely:

4) $3x^2 + 9x - 12$

$ac = -36$

-36	1
-36	6
-6	36
-3	12
-12	3

$3x^2 + 12x - 3x - 12$

$3x(x+4) - 3(x+4)$

$(x+4)(3x-3)$

$(x+4)3(x-1)$

$3(x+4)(x-1)$

Alt:

$3x^2 + 9x - 12$

$3(x^2 + 3x - 4)$

$3(x+4)(x-1)$

5) $6x^2 - 4x - 16$

$ac = -24$

$2(3x^2 - 2x - 8)$

$2(3x^2 - 6x + 4x - 8)$

$2(3x(x-2) + 4(x-2))$

$2(x-2)(3x+4)$

6) $36x^3 + 33x^2 + 6x$

$ac = 24$

$3x(12x^2 + 11x + 2)$

$(12x^2 + 3x + 8x + 2)$

$3x(4x+1) + 2(4x+1)$

$3x(4x+1)(3x+2)$

$$\textcircled{1} \quad x^2 + 4x - 32$$
$$(x-8)(x+4)$$

$$\begin{array}{r} 32 \\ \overline{1} \quad 32 \\ 2 \quad 16 \\ 4 \quad 8 \end{array}$$